

CLAIMS

Claim 1 (cancelled).

2. (Currently Amended) An optical switching device according to claim [[1]] 10,
wherein ~~the switching means comprises an optical member for reflecting an optical signal~~
~~inputted from any of the plurality of input/output ports toward another of the input/output ports;~~
~~wherein the optical member is disposed displaceable so as to move an output point of the~~
optical signal into a direction along an aligning direction of the plurality of input/output ports;
and

wherein the optical member is disposed displaceable so as to move the output point of the
optical signal into a direction intersecting the aligning direction of the plurality of input/output
ports.

3. (Currently Amended) An optical switching device according to claim [[1]] 10, further
comprising an optical demultiplexer device for demultiplexing a wavelength division
multiplexing optical signal into individual wavelengths; and

wherein the ~~switching means~~ switch comprises a plurality of reflective optical members
corresponding to respective signal light components demultiplexed into the individual
wavelengths.

Claim 4 (Cancelled).

5. (Currently Amended) An optical switching device according to claim ~~[[4]]~~ 10, wherein the ~~switching means~~ switch further comprises:

a first electrode, disposed on the substrate, for tilting the optical member about the axis of the cantilever; and

a second electrode, disposed on the substrate, for flexing the cantilever toward the substrate.

6. (Currently Amended) An optical switching device ~~according to claim 1~~, comprising a plurality of input/output ports for inputting/outputting optical signals, and switching means for switching between input/output optical paths of the input/output ports;

wherein the switching means switches between the input/output optical paths of the input/output ports so as to keep an optical signal led to any of the plurality of input/output ports from traversing other input/output ports; and

wherein the time required for switching between input/output paths of input/output ports is 10 ms or less.

7. (Currently Amended) An optical switching device ~~according to claim 1~~, comprising a plurality of input/output ports for inputting/outputting optical signals, and switching means for switching between input/output optical paths of the input/output ports;

wherein the switching means switches between the input/output optical paths of the input/output ports so as to keep an optical signal led to any of the plurality of input/output ports from traversing other input/output ports; and

wherein, when switching between input/output paths of input/output ports, crosstalk to the other input/output ports is -25 dB or better.

8. (Currently Amended) An optical transmission system comprising the optical switching device according to claim [[1]] 10.

9. (Currently Amended) ~~Switching means~~ An optical switch comprising:

a substrate;

an optical member for reflecting light inputted; and

a cantilever ~~for~~ supporting the optical member over the substrate, the cantilever having a first end fixed to the substrate and a distal end free of the substrate, the first end and distal end defining a cantilever axis;

wherein the optical member is disposed so as to be able to tilt ~~from side to side~~ about ~~an~~ the axis of the cantilever; and

wherein the distal end of the cantilever is ~~disposed flexible toward the substrate~~ configured for displacement in a direction orthogonal to the axis of the cantilever.

10. (New) An optical switching device comprising:

a plurality of input/output ports for inputting/outputting optical signals;

a switch positioned in an optical path between a first input/output port and second input/output port of said input/output ports, the switch comprising:

a reflective optical member;

a substrate;

a cantilever opposing the substrate and having a first end fixed thereto, a second end separated from the substrate, and a portion intermediate the first and second ends supporting the optical member;

wherein the switch is configured to switch the optical path from the second input/output port to a third input/output port of said input/output ports while precluding an optical signal in the optical path from traversing the remaining input/output ports.

11. (New) An optical switch as recited in claim 9, wherein the optical member is supported by the cantilever at a portion thereof intermediate the first end and the distal end, and further comprising:

a first electrode, disposed on the substrate proximate the intermediate portion of the cantilever, for tilting the optical member about the axis of the cantilever; and

a second electrode, disposed on the substrate proximate the distal end, for displacing the distal end of the cantilever toward the substrate.

12. (New) An optical switching device according to claim 3, further comprising a plurality of cantilevers corresponding, respectively, to the plurality of reflective optical members.

13. (New) In an optical switching arrangement comprising a plurality of aligned input and output ports, a method for switching an optical signal path from a first output port to a second output port comprising the steps of:

diverting the optical signal path in a direction out of alignment with the ports;

deflecting the optical signal path by an angle corresponding to a position of the second output port while maintaining the optical signal path out of alignment with the ports; and

directing the optical signal path into alignment with the ports to complete the signal path to the second output port;

wherein the optical signal in the signal path is precluded from traversing any of the remaining ports of the plurality of ports.

14. (New) A method as recited in claim 13, wherein the diverting step comprises applying the optical signal to a reflective member; and changing the angle of reflection of the optical signal from the reflective member in a plane transverse to the alignment direction of the plurality of ports.

15. (New) A method as recited in claim 13, wherein the deflecting step comprises applying the optical signal to a reflective member; and rotating the reflective member about an axis that is transverse to a plane of alignment of the plurality of ports.